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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
FRANKLIN, RICHARD B	

ART UNIT	PAPER NUMBER
2181	

DATE MAILED: 07/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/675,529	HEIN, JERRELL	
	Examiner	Art Unit	
	Richard Franklin	2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Hazm. Fleming

FRITZ FLEMING
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100
7/7/2006

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1 – 23 have been examined.

Response to Arguments

2. Applicant's arguments, see pages 7 – 10, filed 10 May 2006, with respect to the rejection(s) of claim(s) 1 – 9 and 11 – 21 under 35 USC 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of a different interpretation of the previously applied reference US Patent No. 5,451,912 (hereinafter Torode).

Applicant argues that Torode does not teach permanently changing modes with respect to the Output Disable (OD) pin (See Remarks; Pages 7 and 8). The Examiner respectfully disagrees. Torode teaches a programmable crystal oscillator (Torode; Item 100) which contains a programmable circuit (Torode; Item 210) and a crystal (Torode; Item 220). The programmable circuit permits ***one time selectability*** of a wide range of frequencies, ranging from 600 KHz to 120 MHz, with the use of the single crystal (emphasis added). Torode also teaches that burn and security fuse (SECF) bits are input to the programmable storage control (Torode; Item 730) to determine whether to ***permanently program the programmable storage control*** (Torode; Col 7 Lines 2 – 5). From these teachings of Torode, it is shown that once the programmable storage control is programmed, it is not possible to reprogram it. Therefore, since no further programming is possible, it would be obvious to one of ordinary skill in the art that the

OD pin can no longer be used as a programming input, making the mode change permanent.

Applicant argues that Torode does not teach permanently changing modes with respect to the OD pin (See remarks; Pages 7 and 8). The Examiner submits that the claims, in view of applicant's specification, do not require a permanent mode change. The specification describes "permanent" as not losing the programmed value when the device is turned off (Specification; Paragraphs [1047] and [1052]). The specification states "A primary (M1) and secondary (M2) NVM [non-volatile memory] space are provided to allow the NVM settings to be ***written twice during the lifetime of the device***" (emphasis added) (Specification; Paragraph [1052]). This suggests that the mode change is not "permanent," meaning the OD pin can be changed back to the first mode in order to write to the secondary (M2) NVM space. The specification also states "If the NVM is one-time programmable, ***the change is permanent***" (emphasis added) (Specification; Paragraph [1033]). This suggests that only in the case where the NVM is one-time programmable is the change permanent, because there is no need to change to the first mode again if the memory cannot be written again. In cases where the NVM is not one-time programmable, the change is not permanent, because the memory is able to be re-written.

Applicant also argues that Torode teaches that the serial mode of operation is available using the OD pin every time the device powers up (See remarks; Page 8 Lines

12 – 15). The Examiner respectfully submits that Applicant has misread the technical features of Torode. Torode recites, "For proper operation ***during programming***, the power is cycled each time the programming circuit 310 receives a new input parameter" (emphasis added) (Torode; Col 7 Lines 32 – 34). The power is only cycled during programming to ensure proper operation of the device while programming. Nowhere does Torode teach that the serial mode of operation is available using the OD pin every time the device powers up.

Applicant also argues that Torode teaches nothing regarding disabling the serial mode after programming (See remarks; Page 8 Lines 15 – 16). The Examiner respectfully submits that Torode does teach this feature. Torode states, "In addition, the security bit is set into the programmable storage 740 as shown in steps 870 and 880. The vector input to the programmable crystal oscillator 100 is thus programmed into the programmable storage 740, and ***retrieved in subsequent power-up operation to generate the output frequency***" (emphasis added) (Torode; Col 7 Line 66 – Col 8 Line 4). This suggests that once the device is programmed, the device returns to its normal state of operation, retrieving the programmed values and using them to generate the output frequency. Torode also suggests using fuses to program the values in the programmable storage (Col 6 Lines 56 – 60). Since a fuse can only be programmed once, it is obvious that once they are programmed, the device does not enter the programming mode again.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 19 – 21 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for converting the terminal from a first mode to a second mode by a structure known to the inventor, does not reasonably provide enablement for those structures not known by the inventor. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. Claim 19 is a single means claim which covers every conceivable structure for achieving the stated purpose. The specification only discloses the structure known to the inventor. See MPEP 2164.08(a).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 – 9 and 11 – 23 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,451,912 (hereinafter Torode).

As per claims 1 and 19, Torode teaches an apparatus comprising an Output Disable (OD) terminal (Figures 1 – 2) wherein the OD terminal has two modes of operation. In the first mode, the terminal is used as a programming terminal that accepts serial data that determines the operation of the apparatus (Col 4 Lines 15 – 19). In the second mode, the terminal is used as an output enable terminal that enables output from the apparatus determining on the voltage on the terminal (Col 3 Lines 25 – 31). Torode also teaches wherein the mode change from the first mode to the second is permanent as apparatus programming is a one-time event (Col 3 Lines 41 – 45), and that the storage used for programming is only programmable once (Col 6 Lines 56 – 60 [fuses]). Once the device is programmed, there is no way to program it again and therefore there is no need to return to the programming mode once programmed.

As per claims 2 and 12, Torode also teaches wherein once the terminal is converted to the second mode of operation, the first mode of operation for the terminal is permanently disabled, because once the programmable circuit is programmed and

the security fuse (SECF) bit is set, it is not possible to change the data programmed in the programmable circuit (Col 3 Lines 41 – 45, Col 7 Lines 2 – 5, Col 7 Lines 10 – 13).

As per claims 3, 13, and 20, Torode also teaches wherein a terminal configuration determining the mode of operation of the terminal is stored in a non-volatile memory (Figure 7 Item 740, Col 6 Lines 56 – 60).

As per claims 4, 14, and 21, Torode also teaches wherein the control circuit is responsive to a communication received over the terminal to convert the terminal to the second mode of operation (Col 4 Lines 15 – 19).

As per claims 5 and 15, Torode also teaches wherein the serial communication received over the terminal in the first mode includes a command and write data (Figure 9, Col 7 Lines 10 – 13).

As per claims 6 and 16, Torode also teaches wherein the control logic distinguishes between a calibration clock and a serial communication received on the terminal (Col 84 Lines 11 – 13).

As per claims 7 and 17, Torode also teaches wherein the output enable function is for controlling the output of one or more clocks according to the voltage value of the terminal (Col 3 Lines 26 – 31).

As per claim 8, Torode also teaches wherein a controllable oscillator is coupled to receive a reference frequency and to supply a clock signal that is coupled to an output terminal that is controlled by the output enable terminal (Col 5 Lines 23 – 33); and a resonating device coupled to supply the reference frequency (Figures 2 – 4 Item 220).

As per claim 9, Torode also teaches wherein the terminal is on a package (Figure 1 Item 100, Col 2 Line 64 – Col 3 Line 25), the package including an integrated circuit (Figure 2 Item 210) and a resonating device (Figures 2 – 4 Item 220), the integrated circuit including the controllable oscillator (Figure 5 Item 560), and the resonating device being a crystal device (Figures 2 – 4 Item 220, Col 3 Lines 38 – 51).

As per claim 11, Torode teaches an apparatus comprising an Output Disable (OD) terminal (Figures 1 – 2) wherein the OD terminal has two modes of operation. In the first mode, the terminal is used as a programming terminal that accepts serial data that determines the operation of the apparatus (Col 4 Lines 15 – 19). In the second mode, the terminal is used as an output enable terminal that enables output from the apparatus determining on the voltage on the terminal (Col 3 Lines 25 – 31). Torode also teaches wherein the mode change from the first mode to the second is permanent as apparatus programming is a one-time event (Col 3 Lines 41 – 45), and that the storage used for programming is only programmable once (Col 6 Lines 56 – 60 [fuses]).

Once the device is programmed, there is no way to program it again and therefore there is no need to return to the programming mode once programmed. Torode also teaches wherein the mode change is performed in response to a command (Figure 9, Col 7 Lines 1 – 13, Col 8 Lines 5 – 12). The command is the input parameter containing the security fuse (SECF) bit and a program or burn bit.

As per claim 18, Torode also teaches wherein the terminal is on a package, the package including an integrated circuit and a resonating device, the resonating device being one of a crystal device (Figure 1 Item 100).

As per claims 22 and 23, Torode also teaches wherein the terminal is not operable in the second mode until the terminal is permanently converted to operate in the second mode. Torode teaches that when power is ***first*** applied to the programming circuit, the power on initialization circuit supplies a reset signal to clear the shift register and initially sets the post divide circuit (Col 7 Lines 25 – 34). This suggests that upon ***first*** power-up, the device is in programming mode. In order to move into operation mode, the device must be programmed and by supplying an input parameter that has the SECF and a program or burn bit set (Col 7 Lines 1 – 13).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,451,912 (hereinafter Torode) in view of US Patent No. 6,664,860 (hereinafter Fallisgaard).

As per claim 10, Torode teaches the apparatus as described per claim 1 (see rejection of claim 1 above). Torode also teaches wherein a terminal receives serial communications and a calibration clock (Torode; Col 8 Lines 17 – 20).

Torode does not teach wherein the apparatus comprises a second terminal that functions as a dedicated programmable input/output terminal.

However, Fallisgaard teaches a programmable crystal oscillator with a dedicated programming input terminal (Fallisgaard; Figure 1 Item 22) that does not get converted into an output enable terminal.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Torode to include the dedicated programming terminal because it allows for customer data to be entered into the device (Fallisgaard; Col 3 Lines 17 – 23).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Franklin whose telephone number is (571) 272-0669. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fritz Fleming can be reached on (571) 272-4145. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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